

MEMORANDUM FOR Chief, Planning and Policy Division

FROM: CECW-PC (Steven R. Cone & Robert M. McIntyre)

SUBJECT: Review Documentation - Delaware River Main Channel Deepening Project, Delaware, New Jersey, and Pennsylvania - Comprehensive Economic Reanalysis Report - December 2002

1. References:

a. CENAP-DP Memorandum for Commander HQUSACE, ATTN: CECW-PC, dated 4 December 2002, forwarding the subject report.

b. CENAD-CM-PP Memorandum for Commander HQUSACE, ATTN: CECW-PC, dated 9 December 2002, endorsing the subject report.

2. Background:

a. Authorization. Section 101(6) of the Water Resources Development Act of 1992 (Public Law 102-580), authorized for construction a project to deepen the Delaware River Navigation Channel from 40 to 45 feet based on a report of the Chief of Engineers dated 29 June 1992. The authorized project was modified by Section 308 of the Water Resources Development Act of 1999 (Public Law 106-53).

b. Reanalysis. The need for economic reanalysis was dictated by guidance contained in Engineering Circular (EC) 11-2-183, dated 31 March 2002 (Sub Appendix B-2). In addition, the U.S. General Accounting Office, in its final June 2002 report on the Delaware River Main Channel Deepening Project, recommended that a comprehensive reanalysis be undertaken.

c. Project Description. The proposed 45-foot deepening project extends over 100 river miles within the Delaware River and Bay along the borders of the Commonwealth of Pennsylvania, and the States of New Jersey and Delaware. The channel width remains the same as the existing 40-foot project, and would range from 400 feet in Philadelphia Harbor to 800 feet from Philadelphia Navy Yard to Bombay Hook and then 1,000 feet in Delaware Bay. The project also includes the acquisition of three new upland disposal sites (Raccoon Island, 15D, and 15G) and beneficial use of dredged material at Kelly Island and Broadkill Beach in Delaware and Egg Island Point New Jersey. Total cost of the project, based on May 2002 price levels is estimated to be \$229.5 million for general navigation features, aids to navigation, and lands, easements, rights-of-way and relocations. In addition, non-Federal interests must undertake construction of local service facilities totaling about \$42 million. The average annual NED benefits of the 45-foot deepening plan are estimated to be \$24.7 million based on May 2002 Price Levels

and the FY 03 Federal discount rate of 5-7/8 percent. Two sets of numbers are presented for average annual costs. One set of values include approximately \$10 million in post authorization Planning, Engineering and Design (PED) costs and the other set exclude these sunk PED costs. Including sunk PED costs, the average annual costs are \$21.7 million, resulting in net benefits of about \$3 million and a benefit cost ratio of 1.14 to 1. The report also displays the results of excluding these costs from the benefit-to-cost analysis as specified in ER 1105-2-100 (reference pages D-8 & D-9, paragraph (10) (a)). The remaining average annual costs to complete the project (e.g. excluding the prior PED expenditures) are \$20.9 million, resulting in net benefits of \$3.8 million and a benefit to cost ratio of 1.18 to 1.

d. Overview Delaware River Regional Commodity Flows. The eighty-two million short tons of foreign trade used the Delaware River port system in 2000. This accounted for 32% of the North Atlantic foreign trade and 6% of the total U.S. foreign trade. The ports along the Delaware combined system, rank 3rd in the U.S. in terms of total foreign tonnage. For 2000, crude oil imports through the entire Delaware River port system were 70.8 million short tons or 64% of total crude oil imports for all North Atlantic trade and 14% of total U.S. crude oil imports.

3. Review Documentation. The report has been subject to several levels of review and overall quality control and quality assurance (QA/QC) at district, division, and Headquarters levels. The district and division QA/QC documentation, including the results of external independent reviews of the costs and benefits, are part of their submittals to HQUSACE.

a. External Independent Review. The HQUSACE review included an External Independent Review Panel (EIRP) as recommended by the General Accounting Office in their final report of June 2002. The EIRP reviewed a prior version of the report by NAP and offered comments and recommendations for further analysis and information. The (EIRP) report dated 15 November 2002 concluded that if certain actions were taken and verified, the final version of the Comprehensive Economic Reanalysis Report would be a reliable basis for economic justification of the Delaware River Channel Deepening Project. The final December 2002 report of NAP (reference 1.a.) along with all supporting materials and review products, including a draft of enclosed HQUSACE review documents, were furnished to the EIRP. On 17 December 2002, the HQUSACE review team held a teleconference with the EIRP. Based on the discussions in this teleconference, the EIRP indicated that no major issues remain and that the report, along with supporting documentation, provides a reliable basis for determining the economic justification of the authorized project. This is subject to further documentation in the HQUSACE review record regarding three items: Container Vessel Draft Scenarios, Insufficient Support for Delay Benefits, and Broadkill Beach Disposal Benefits. NAP and HQUSACE have included expanded information and documentation in the final review documentation to address and resolve these concerns.

b. HQ Review Documentation. The attached HQUSACE review documentation is made up of two parts. The first part consists of the Documentation of Comments by the

External Independent Review Panel and Resolution of these Issues by the Corps with the preparation and review of the December 2002 Final Comprehensive Economic Reanalysis Report. The second part of the documentation consists of the HQUSACE review team findings for subject report. As noted for each item in the HQ Review Documentation, all issues are resolved.

4. Sensitivity Analysis. At the recommendation of the EIRP and in accordance with Corps regulations, extensive sensitivity analyses were conducted and presented in the December 02 report. The sensitivity analysis was both quantitative and qualitative, as discussed in Appendix C - Benefit Analysis (Section 6). The headquarters review team finds that the most critical assumption affecting overall economic feasibility pertains to the size and makeup of the lightering fleet in the with-project condition. In the report, the District made the assumption that the highest-cost lightering vessel would be taken out of service. If, on the other hand, the lightering service chooses to remove from service a lower cost vessel basis, the sensitivity analysis indicates the project remains marginally justified. However, if there is no change in the lightering fleet in the with-project condition, the economic justification of the project could be jeopardized. The report further points out that, based on the understandings of the District analysts (including their consultants and independent reviewers) of the lightering fleet operations and costs, the alternative assumptions employed in the sensitivity analysis in this regard are not likely.

2 Encls

Signed Signed
Steven R. Cone & Robert M. McIntyre

Headquarters Review Team
Planning and Policy Division
Directorate of Civil Works